

# Matthew T. Farr

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## Education

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Ph.D. in Zoology, Dual Degree in Ecology, Evolution, and Behavior, Michigan State University, East Lansing, MI, August 2021 (GPA: 3.8/4.0)  
Dissertation: “Data Integration in Population and Community Ecology Using Hierarchical Modeling”  
B.S. in Wildlife, *With Distinction*, Purdue University, West Lafayette, IN, 2014 (GPA: 3.8/4.0)

## Research Experience

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Postdoctoral Research Scholar: Integrating community science data with long-term aerial surveys to understand seasonal and long-term shifts in marine bird use of Puget Sound (Washington SeaGrant external funding), University of Washington (Spring 2024-Present).  
Postdoctoral Research Scholar: Optimizing range-wide monitoring strategy for Tufted Puffins (USFWS: Alaska Maritime NWR external funding), University of Washington (Spring 2023-Present)  
Postdoctoral Research Scholar: Maximizing the value of Salish Sea aerial surveys for sea duck management (WDFW internal funding), University of Washington (Fall 2021-Present)  
Graduate Research Assistant: Development of integrated, scalable hierarchical models (NSF RAPID, MSB:ECA, INTERN grants), Michigan State University, Patuxent Wildlife Research Center (Fall 2018-Fall 2021)  
Graduate Research Assistant: Gulf of Mexico marine assessment program for protected species (GoMMAPPS), Michigan State University (Spring 2018-Summer 2018)  
Research Technician: The behavioral ecology and conservation of African carnivores (NSF International Research Experience for Students [IRES] Program), Michigan State University (2015)  
Wildlife Technician: Assessing juvenile survival in Eastern Hellbenders (Indiana State Wildlife Grant Project), Purdue University (Fall 2014)  
Biological Technician: Sierra Nevada carnivore monitoring program, United States Forest Service (2014)

## Teaching Experience

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Social Science Data Analytics Summer Workshop Series, Michigan State University  
Guest Lecturer: Introduction to Bayesian software in R (Summer 2020)  
IBIO 831: Statistical Methods in Ecology and Evolution, Michigan State University  
Graduate Teaching Assistant and Guest Lecturer (Spring 2019, Spring 2020)  
IBIO/African Graduate Student Association Short-course, Michigan State University  
Guest Lecturer: Introduction to Data Management and Analysis for Biologists and Behavioral Scientists (Spring 2018)  
IBIO 365: Biology of Mammals Laboratory, Michigan State University  
Graduate Teaching Assistant (Spring 2017)  
BS 171: Molecular and Cell Biology Laboratory, Michigan State University  
Graduate Teaching Assistant (Fall 2016, Fall 2017)  
FNR 210: Natural Resource Information Management, Purdue University  
Undergraduate Teaching Assistant (Spring 2014)

## Publications

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- Brusa, J., **Farr, M.T.**, Evenson, J, Murphie, B., Cyra, T.A., Tschackofsky, H.J., Spragens, K.A., Silverman, E., and Converse, S.J. (*In Review*) Correcting for measurement errors in a long-term aerial survey with auxiliary photographic data. *Ecosphere*.
- Gilbert, N.A., Blommel, C.M., **Farr, M.T.**, Green, D.S., Holekamp, K.E, and Zipkin, E.F. (*In Press*) A multispecies hierarchical model to integrate count and distance sampling data. *Ecology*.
- Farr, M.T.**, Zylstra, E.R., Ries, L., and Zipkin, E.F. (2024) Overcoming data gaps using integrated models to estimate migratory species dynamics during cryptic periods of the annual cycle. *Methods in Ecology and Evolution*. 15: 413-426.
- Farr, M.T.**, O'Brien, T., Yackulic, C.B., and Zipkin, E.F. (2022) Quantifying the conservation status and abundance trends of wildlife communities with detection-nondetection data. *Conservation Biology*. 36: e13934.
- Christensen, S.A., **Farr, M.T.**, and Williams, D.M. (2021) Assessment and novel application of N-mixture models for aerial surveys of wildlife. *Ecosphere*. 12: e03725.
- Farr, M.T.**, Green, D.S., Holekamp, K.E., and Zipkin, E.F. (2021) Integrating distance sampling and presence-only data to estimate species abundance. *Ecology*. 102: e03204.
- Marshall, A.J., **Farr, M.T.**, Beaudrot, L., Zipkin, E.F., Feilen, K.L., Bell, L.G., Setiawan, E., Susanto, T.W., Setia, T.M., Leighton, M., and Wittmer, H.U. (2021) Biotic and abiotic drivers of dispersion dynamics in a large-bodied tropical vertebrate, the Western Bornean orangutan. *Oecologia*. 196: 707-721.
- Saunders, S.P., Piper, W., **Farr, M.T.**, Bateman, B.L., Michel, N.L., Westerkam, H., and Wilsey, C.B. (2021) Interrelated impacts of climate and land-use change on an iconic waterbird. *Journal of Animal Ecology*. 90: 1165-1176.
- Zylstra, E.R., Ries, L., Neupane, N., Saunders, S.P., Ramírez, M.I., Rendón-Salinas, E., Oberhauser, K.S., **Farr, M.T.**, and Zipkin, E.F. (2021) Changes in climate drive recent monarch butterfly dynamics. *Nature Ecology and Evolution*. 5: 1441-1452.
- Farr, M.T.**, Green, D.S., Holekamp, K.E., Roloff, G.J., and Zipkin, E.F. (2019) Multi-species hierarchical modeling reveals variable responses of African carnivores to management alternatives. *Ecological Applications*. 29: e01845.
- Green, D.S.<sup>†</sup>, **Farr, M.T.**<sup>†</sup>, Holekamp, K.E., Strauss, E.D., and Zipkin, E.F. (2019) Can hyena behavior predict abundances of sympatric carnivores? *Philosophical Transactions of the Royal Society B*. 347: 20180052. <sup>†</sup>Authors contributed equally.
- Saunders, S.P., **Farr, M.T.**, Wright, A.D., Bahlai, C.A., Ribeiro, J.W., Rossman, S., Sussman, A.L., Arnold, T.W., and Zipkin, E.F. (2019) Disentangling data discrepancies with integrated population models. *Ecology*. 100: e02714.

## Presentations

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- Farr, M.T. (2024) Counting seabirds in Puget Sound: How difficult could it be? Puget Sound Bird Fest. Edmonds, WA. June 1, 2024. (Invited Oral).
- Farr, M.T., Gardner, B., Petracca, L.S., Hodum, P.J., Kaler, R.S.A., Pearson, S.F., Renner, H.M., and Converse, S.J. (2024) Optimizing range-wide monitoring strategy for Tufted Puffins. Pacific Seabird Group Annual Meeting. Seattle, WA. February 22, 2024. (Contributed Oral).
- Farr, M.T. (2024) Data integration in population and community ecology. University of Washington, Fish and Wildlife Seminar Series. Virtual. January 11, 2024.
- Farr, M.T., Spragens, K.A., Evenson, J.R., Murphie, B.L., Hamer, M.D., and Converse, S.J. (2022) Spatiotemporal model to estimate annual growth rates and overwintering distribution of sea ducks in

the Salish Sea. The Wildlife Society Annual Meeting. Spokane, WA. November 9, 2022.  
(Contributed Oral).

Farr, M.T. (2022) Using data integration to estimate species abundance. University of Washington, School of Aquatic and Fishery Sciences Departmental Seminar Series. Seattle, WA. April 7th, 2022.

Farr, M.T. (2021) Data Integration in population and community ecology using hierarchical modeling. Michigan State University Dissertation Seminar. Virtual. August 26<sup>th</sup>, 2021.

Farr, M.T. (2021) Data integration in population and community ecology. Michigan State University's Ecology, Evolution, and Behavior Seminar. Virtual. January 28, 2021. (Distinguished Student Speaker)

Farr, M.T., O'Brien, T., Yackulic, C.B., and Zipkin, E.F. (2020) Estimating demographic parameters in animal communities using detection-nondetection data with a 'multi-species N-occupancy model'. The Wildlife Society Annual Conference. Virtual. September 28 – October 2, 2020. (Contributed Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., and Zipkin, E.F. (2019) Integrating distance sampling and presence-only data to estimate abundance. The Wildlife Society Annual Conference. Reno, NV. October 3, 2019. (Invited Oral)

Farr, M.T., Wilson, R.R., Sussman, A.L., Silverman, E.D., Lyons, J.E., and Zipkin, E.F. (2018) Impacts of offshore energy development, oceanographic features, and climate change on seabird distributions. Environmental Science and Policy Program Annual Symposium. East Lansing, MI. November 1, 2018. (Contributed Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., Roloff, G.J., and Zipkin, E.F. (2018) Multi-species hierarchical modeling reveals variable responses of African carnivores to management alternatives. The Wildlife Society Annual Conference. Cleveland, OH. October 8, 2018. (Invited Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., and Zipkin, E.F. (2018) Integrating distance sampling with presence only data. International Statistical Ecology Conference. St Andrews, UK. July 4, 2018. (Contributed Oral) *\*Awarded Best Student Presentation*

Farr, M.T. (2018) Integrated species distribution modeling. Michigan State University's Ecology, Evolution, and Behavior Colloquium. East Lansing, MI. February 28, 2018. (Contributed Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., Roloff, G.J., and Zipkin, E.F. (2017) A hierarchical community distance sampling model: case study of a carnivore community. Michigan State University's Ecology, Evolution, and Behavior Symposium. East Lansing, MI. May 1, 2017. (Contributed Oral) *\*Awarded Best Student Presentation*

Farr, M.T., Green, D.S., Holekamp, K.E., and Zipkin, E.F. (2016) A community distance sampling model for estimating the distributions and abundances of carnivores in the Maasai Mara, Kenya. The Ecological Society of America's Annual Conference, Fort Lauderdale, FL. August 12, 2016. (Contributed Poster)

## **Grants, Honors and Awards**

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Washington Sea Grant Research Project Grant (2023; co-PI; \$279,484)

The Wildlife Society Student Paper Award Shortlist (2021)

Michigan State University Ecology, Evolution, and Behavior Distinguished Student Speaker (2021)

National Science Foundation INTERN Program Award (2019)

Michigan State University Environmental Science Policy Program Networking Fellowship (2018)

Michigan State University Environmental Science Policy Program Summer Research Fellowship (2018)

Michigan State University Ecology, Evolution, and Behavior Summer Fellowship (2017)

National Science Foundation Graduate Research Fellowship Honorable Mention (2016)

Michigan State University Quantitative Biology Recruiting Fellowship (2015)

Indiana Academy of Science Senior Research Grant (2013)

Purdue University College of Agriculture Undergraduate Research Grant (2013)

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### **Graduate (and Other Relevant) Coursework**

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Template Model Builder (UW workshop), Write Winning Grant Proposals (GWSW workshop), Introduction to Python (DataCamp), Introduction to Git (DataCamp), IBIO 851 Statistical Methods in Ecology and Evolution (MSU), IBIO 896 Population and Community Ecology (MSU), IBIO 849 Evolutionary Biology (MSU), FW 849 Bayesian Inference Monte Carlo (MSU), IBIO 801 Professional Development (MSU), MTH 309 Linear Algebra (MSU), PLB 898 Population and Community Ecology Theory Lab (MSU), IBIO 890 Reproducible Quantitative Methods (MSU), IBIO 890 Modern Statistical Models in Ecology (MSU), QFC (short-course) Software Tools for Maximum Likelihood Estimation (MSU), STAT 503 Statistical Methods in Biology (Purdue), BIOL 595 Ecological Statistics (Purdue), FNR 567 Advanced Mammalogy (Purdue), FNR 598 R and Bayesian Analysis in Ecology (Purdue), FNR 647 Quantitative Methods for Ecologists (Purdue)

### **Professional Society Memberships**

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The Wildlife Society

Ecological Society of America

### **Outreach Activities**

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Michigan State University Middle School Girls Math and Science Day (2018)

University of Washington Aquatic Sciences Open House (2023)

Pilchuck Audubon Puget Sound Bird Fest (2024)